



UNITED STATES PATENT AND TRADEMARK OFFICE

1
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,340	09/16/2003	Junji Kobayashi	H64-154706M/MNN	9314
21254	7590	08/27/2007		
MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			EXAMINER DOTE, JANIS L	
			ART UNIT 1756	PAPER NUMBER PAPER
			MAIL DATE 08/27/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/662,340	KOBAYASHI ET AL.
	Examiner	Art Unit
	Janis L. Dote	1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 01 August 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,4,6-14 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,4,6-14 and 20-22 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/12/07</u> . | 6) <input type="checkbox"/> Other: _____. |

Art Unit: 1756

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Jun. 12, 2007, has been entered.

2. The examiner acknowledges the amendments to claims 1, 20, and 21 and the cancellation of claim 5 filed on Mar. 2, 2007, which was entered upon the filing of RCE. The examiner also acknowledges the addition of claim 22 filed on Jun. 12, 2007. Claims 1, 4, 6-14, and 20-22 are pending.

3. The objection to the amendment filed on Dec. 9, 2004, under 35 U.S.C. 132(a) set forth in the office action mailed on Jan. 12, 2007, paragraph 3, has been withdrawn in response to the amended paragraph beginning at page 29, line 12, of the specification, filed on Aug. 1, 2007. That amendment discloses the originally disclosed binder resin amount of 85 wt%. In view of applicants' comments in the response filed on Aug. 1, 2007, the total weight percentage of 101 wt% of the composition

Art Unit: 1756

disclosed at page 29 does not affect the subject matter recited in the instant claims.

Because the amendment filed on Aug. 1, 2007, removes the objection to the amendment filed on Dec. 9, 2004, under 35 U.S.C. 132(a), the examiner need not comment on the Rule 132 declarations filed on Mar. 28, 2007, Jun. 12, 2007, Jul. 13, 2007.

The objection to claims 1, 5, 20, and 21 set forth in the office action mailed on Jan. 12, 2007, paragraph 5, has been withdrawn in response to the amendments to claims 1, 20, and 21 and the cancellation of claim 5 filed on Jun. 12, 2007.

The rejection of claim 5 under 35 U.S.C. 102(b)/103(a) over US 5,605,778 (Onuma) set forth in the office action mailed on Jan. 12, 2007, paragraph 7, has been mooted by the cancellation of claim 5 filed on Mar. 2, 2007.

4. In view of the disclosure in the instant specification and applicants' comments, the examiner has interpreted the phrase "sufficient fixing performance" recited in instant claim 1 as referring to a property of the toner. See the instant specification, page 9, line 22, page 10, lines 1-3 and 18-21. Also see applicants' comments in the response filed on Oct. 30, 2006, page 14, lines 18-21.

Art Unit: 1756

If applicants do not agree, they should clearly state so and indicate where there is antecedent basis in the originally filed specification for their interpretation.

5. The indicated allowability of claims 1, 4, 6-14, 20, and 21 has been withdrawn in view of the newly discovered reference(s) to Japanese Patent 2002-268269. Rejections based on the newly cited reference(s) follow.

On further review of the verified English-language translation of the priority document Japanese Patent Application 2002-275451 filed on May 16, 2006, the examiner has determined that applicants have not perfected their claim for foreign priority for the subject matter recited in instant claim 21 for at least the following reasons:

The translation does not describe an apparatus as set forth under 35 U.S.C. 112, first paragraph. Instant claim 21 recites an image forming apparatus comprising "an electrostatic charge holding member for holding an electrostatic latent image." The translation in paragraph 0063 describes an image forming apparatus comprising a photosensitive body as an electrostatic charge bearing member. The "electrostatic charge holding member" recited in instant claim 21 is broader than the disclosed photosensitive body because it includes non-

Art Unit: 1756

photosensitive members, such as non-photosensitive dielectric papers and films used in electrographic processes. Thus, the filing date of the subject matter recited in instant claim 21 is the filing date of the instant application, Sep. 16, 2003.

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,430,526 (Ohkubo) combined with US 6,808,851 B2 (Bartel), as evidenced by: US2003/0049552 A1 (Fields); US 6,849,371 B2 (Sacripante); US 2004/0043317 (Yaguchi'317); and US 2002/0160291 A1 (Yaguchi'291).

Ohkubo discloses an electrophotographic image forming apparatus comprising all the components recited in instant claim 21, but for the particular toner. Fig. 1 and col. 2, line 56, to col. 3, line 57. The apparatus shown in Fig. 1 comprises an electrophotographic photosensitive drum **3**, a contact charging member **4**, an exposure unit that comprises a laser beam **L**, a developing unit **5**, a transfer unit **7**, and a fixing unit **17**. Ohkubo also discloses a process cartridge that comprises all the components recited in instant claim 15, but for the particular toner. Fig. 2 and col. 3, line 65, to

Art Unit: 1756

col. 4, line 8. The process cartridge shown in Fig. 2 comprises the photosensitive drum 3, a charging roller 4, a developing device 5, and cleaning unit 8. Ohkubo teaches that the process cartridge is attachably mounted or detachably mountable as a unit relative to the image forming apparatus. Col. 3, lines 63-65.

Ohkubo does not exemplify the particular toner recited in the instant claims. However, Ohkubo does not limit the type of toner used.

Bartel discloses a toner comprising 81 wt% of a styrene-butyl acrylate copolymer binder resin and 9 wt% of a wax mixture based on the weight of the toner. The wax mixture comprises about 75 wt% of the polyethylene wax associated with the tradename POLYWAX 725 and 25 wt% of the polyethylene wax associated with the tradename POLYWAX 1000. Col. 14, lines 1-3; Example VI at col. 20; and col. 21, lines 11-14. It is known in the toner art that POLYWAX 1000 has a crystallinity of 90%, which meets the limitation of "at least one of the wax components having a crystallinity of greater 85% to less than 93%" recited in instant claim 21. See Yaguchi'317, paragraph 0245, lines 3-6, which discloses that the polyethylene wax associated with the tradename PW1000 has a crystallinity of 90%; and Yaguchi'291, at paragraph 0106, line 4, and in Table 1

Art Unit: 1756

at page 7, which identifies the polyethylene wax associated with the tradename PW 1000 as also POLYWAX 1000. The styrene-n-butyl acrylate copolymer binder resin meets the fixing resin limitation recited in instant claim 21.

Bartel discloses that POLYWAX 725 has a melting point determined by DSC of about 108°C, which is within the range of 50 to 120°C recited in instant claim 21. Col. 14, lines 2-3. The prior art discloses that POLYWAX 1000 exhibits an onset temperature in a DSC curve at 65.1°C; and that POLYWAX 725 exhibits an onset temperature of about 80°C. See Fields, Table 4 at page 6, POLYWAX 1000; and Sacripante, col. 12, lines 46-48. The Bartel toner in example VI satisfies formulas (1) to (3) recited in instant claim 21. "T" in formula (1) is 76.3°C (i.e., $[65.1^\circ\text{C} \times 25 \text{ wt\%} + 80^\circ\text{C} \times 75 \text{ wt\%}] / 100 \text{ wt\%}$). The "T" value of 76.3°C is greater than "56," so the inequality in formula (2) is satisfied.

Furthermore, Bartel teaches that its toner can be used in "a variety of imaging devices including printers, copy machines, and the like." Col. 21, lines 19-21, and reference claim 21. Bartel discloses that its toner can be used for known electrophotographic imaging and printing processes. Col. 3, line 67, to col. 4, line 1. According to Bartel, the toner in example VI exhibits a minimum fixing temperature of about 165°C,

Art Unit: 1756

a hot offset temperature greater than 210°C, and a fusing latitude greater than about 45°C. Col. 20, lines 64-67. The toner had a reduction of wax protrusions and a narrow toner particle size distribution GSD of 1.31. See Table 3 at col. 21, and associated text at col. 21, lines 11-18. Bartel further discloses that its invention relates to toner compositions, wherein the toner possesses "stable triboelectric charging properties, and upon fusing provides a desired gloss level, high-quality document release and offset, with a desired minimum fixing temperature (MFT), and high-quality transmission optical density." Col. 4, lines 13-18.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Ohkubo and Bartel, to use the Bartel toner in example VI as the toner in the image forming apparatus disclosed by Ohkubo. That person would have had a reasonable expectation of successfully providing an electrophotographic image forming apparatus that provides toner images that have the fixing properties, a desired gloss, and high-quality transmission optical density as disclosed by Bartel.

8. Claims 1, 4, 6-14, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 2002-268269

Art Unit: 1756

(JP'269), as evidenced by Fields, combined with US 5,364,722 (Tanikawa). See the USPTO English-language translation of JP'269 for cites.

JP'269 discloses a toner comprising 86 wt% of a styrene-acrylic copolymer resin as the fixing resin, 1 wt% of a charge control agent, 8 wt% of a colorant, and 5 wt% of a wax, based on the weight of the toner. The wax comprises (1) 50 wt% of a wax having a number average molecular weight (Mn) of not higher than 600 and (2) 50 wt% of a polyethylene wax associated with the tradename PW1000 manufactured by Toyo-Petrolite Co., Ltd, which has a Mn of 820. The toner has an average particle size of 8.9 μm and comprises 4.8% by unit of particles having a particle size of smaller than 4 μm . Translation, paragraph 0087 and example 3 at paragraphs 0091-0092 and in Table 1. The wax is present in an amount of 5.2 wt% based on the weight of the fixing resin and the wax, which is within the wax amount ranges recited in instant claims 6 and 7. The amount of wax was determined from the information provided in example 3 of JP'269. The styrene-acrylic copolymer resin is within the fixing resin compositional limitations recited in instant claims 11 and 12.

According to JP'269, the polyethylene wax associated with the tradename PW1000 has a DSC thermal absorption peak (another name for melting temperature) at 110°C, which is within the

Art Unit: 1756

melting point range of 50 to 120°C recited in instant claims 1 and 20. The polyethylene wax also meets the wax compositional limitations recited in instant claims 8-10 and 13.

The wax comprising (1) the wax having a number average molecular weight (Mn) of not higher than 600 and (2) the polyethylene wax PW1000 having a Mn of 820 meets the wax limitation of comprising a low molecular weight wax and a wax having a higher molecular weight than the low molecular weight wax recited in instant claim 14.

JP'269 teaches that because the wax having a Mn of not higher than 600 is "more likely to melt at a lower temperature than conventional waxes, it melts easily using a small amount of heat when contained in the toner." When the toner image on recording medium is fixed by with a thermal roller system, the "toner penetrates the recording medium, such as a sheet of paper, and is fixed there with a small amount of heat to demonstrate an anchor effect while attaining a strength against peeling." Paragraph 0033. According to JP'269, a toner comprising a wax having a Mn of 600 or less and having the particular particle size distribution taught by JP'269 has low energy fixing property and does not exhibit offset. The toner also has thermal resistance, durability, and storing stability. Translation, paragraphs 0025, 0116, and 0117, and example 3 in

Art Unit: 1756

Table 1 at page 22. Thus, the JP'269 toner meets the limitation of comprising a wax that has "an appropriate amount of a low molecular weight wax to maintain sufficient fixing performance" as recited in instant claim 1.

JP'269 does not appear to exemplify a toner comprising a wax having a crystallinity of greater than 85% and less than 93% as recited in instant claims 1, 20, and 22. However, JP'269 does not limit the type of wax having a Mn of 600 or less. According to JP'269, "[a] natural wax or a synthetic wax may be utilized as such wax as long as it has a number average molar weight of polyethylene reduced molar weight of 600 or less. For example, some polyethylene waxes . . . may be mentioned without being restricted to them." Translation, paragraph 0046.

Tanikawa teaches the polyethylene wax D2, which has a Mn of 470. See wax D2 at col. 25, lines 47-50 and in Tables 7-1, 7-2 and 8 at cols. 25-26. According to Tanikawa, the wax Mn is determined from the molecular weight distribution of the wax obtained by measurement by GPC, based on a calibration curve prepared by monodisperse polystyrene standard samples, which is then recalculated into a distribution corresponding to that of polyethylene using a conversion formula based on the Mark-Houwink viscosity formula. Col. 8, lines 21 to 38. Thus, the Tanikawa polyethylene wax D2 having a Mn of 470 appears to meet

Art Unit: 1756

the JP'269 wax having a number average molar weight of polyethylene reduced molar weight of 600 or less.

According to Tanikawa, the polyethylene wax D2 also has a crystallinity of 91%, a DSC maximum heat-absorption peak temperature (another name for melting temperature) at 99°C, and exhibits an onset temperature of a heat absorption peak in a DSC curve of 57°C. See Tables 7-1 and 8, wax D2. The maximum peak of absorbed heat and the crystallinity are within the melting point range and crystallinity range, respectively, recited in instant claims 1, 20, and 22. The Tanikawa polyethylene wax D2 further meets the wax compositional limitations recited in instant claims 8-10 and 13. According to Tanikawa, a wax having a crystallinity of at least 80%, preferably at least 85%, in view of its uniformity, does not adversely affect the triboelectric chargeability of the toner and "is dispersed [in the toner] in a state of easy phase separation suited for exhibiting a release effect to provide excellent anti-offset characteristic." Col. 7, lines 60-65. Tanikawa further teaches that a wax having an onset temperature of heat absorption peak in the range of 50 to 110°C provides satisfactory developing performance, anti-blocking characteristic and low-temperature fixability. Col. 9, lines 42-46.

Art Unit: 1756

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'269 and Tanikawa, to use the Tanikawa polyethylene wax D2 as the wax having a Mn of 600 or less in combination with the polyethylene wax PW1000 in example 3 of JP'269 in a weight ratio of 1:1. That person would have had a reasonable expectation of successfully obtaining a toner having the properties disclosed by JP'269 and Tanikawa.

The prior art discloses that PW1000 exhibits an onset temperature in a DSC curve at 65.1°C. See Fields, Table 4 at page 6, POLYWAX 1000. JP'269, translation at paragraph 0093, lines 3-5, and in Table 1 at page 22 (Key 7), identifies the polyethylene wax associated with the tradename PW 1000 as also POLYWAX 1000. As discussed above, the Tanikawa polyethylene wax D2 exhibits an onset temperature in a DSC curve at 57°C. The wax mixture comprising the JP'269 polyethylene wax PW1000 and the Tanikawa polyethylene wax D2 in a weight ratio of 1:1 satisfies formulas (1) to (3) recited in instant claims 1, 20, and 22. "T" in formula (1) is 61°C (i.e., [65.1°C x 50 wt% + 57°C x 50 wt%]/100 wt%). The "T" value of 61°C is greater than "56," so the inequality in formula (2) is satisfied.

Instant claim 4 is written in product-by-process format. Claim 4 recites that the vinyl copolymer "is polymerized in

existence [sic] of the wax." JP'269 does not exemplify making a toner as recited in instant claim 4. Rather, the toner in example 3 of JP'269 is obtained by melt-kneading a mixture comprising the binder resin and the waxes in a biaxial kneader, cooling the melted mixture, pulverizing the cooled mixture, and classifying the pulverized composition to obtain toner particles. See example 3. However, as discussed above, the JP'269 toner comprises a styrene-acrylic copolymer, which meets the vinyl resin compositional limitation recited in instant claim 4. As discussed above, the combined teachings of JP'269 and Tanikawa render obvious a toner that meets the compositional limitations recited in instant claim 4. Accordingly, the toner rendered obvious over the combined teachings of the prior art appears to be the same or substantially the same as the toner recited in instant claim 4. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okhubo combined with JP'269, as evidenced by Fields, and Tanikawa. See the USPTO English-language translation of JP'269 for cites.

Art Unit: 1756

Okhubo discloses an image forming apparatus as described in paragraph 7, which is incorporated herein by reference. The Okhubo apparatus meets the components recited in instant claim 21, but for the particular toner recited in the instant claim.

Ohkubo does not exemplify the particular toner recited in the instant claims. However, Ohkubo does not limit the type of toner used.

JP'269, as evidenced by Fields, combined with Tanikawa renders obvious a toner as described in paragraph 8 above, which is incorporated herein by reference. As discussed in paragraph 8 above, that toner meets the toner limitations recited in instant claim 21. The discussions of JP'269, Fields, and Tanikawa are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Ohkubo, JP'269, and Tanikawa, to use the toner rendered obvious the combined teachings of JP'269 and Tanikawa as the toner in the image forming apparatus disclosed by Ohkubo. That person would have had a reasonable expectation of successfully providing an electrophotographic image forming apparatus that provides toner images that can be fixed with low energy.

Art Unit: 1756

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500
1700

JLD

Aug. 21, 2007